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WHAT IS CLAIMED IS:

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1. A method of treating a hematologic malignancy associated with high numbers of circulating tumor cells by administering a therapeutically effective amount of an anti-CD20 antibody or fragment thereof.

2. The method of Claim 1, wherein said malignancy is a leukemia.

3. The method of Claim 1, wherein said malignancy is B-prolymphocytic leukemia (B-PLL) or chronic lymphocytic leukemia (CLL).

4. The method of Claim 1, wherein said antibody is a chimeric, humanized or human anti-CD20 antibody.

5. The method of Claim 1, wherein said antibody is administered at a dosage ranging from 0.1 to 30 mg/kg.

6. The method of Claim 5, wherein said dosage is administered weekly for about 2 to 10 weeks.

7. The method of Claim 1, wherein said antibody is RITUXAN®.

8. The method of Claim 3, wherein said antibody is administered in combination with radiation, chemotherapy, and/or lymphokine administration.

9. The method of Claim 1, wherein said antibody is administered by infusion at a dosage of 375 mg/kg weekly for a total of four weeks.

10. The method of Claim 8, wherein said lymphokine is selected from the group consisting of IL-4, GM-CSF, TNF-alpha and interferon alpha.

11. The method of Claim 8 wherein said chemotherapy is selected from the group consisting of chlorambucil (leukeran), prednisone, cyclophosphamide, COP, CHOP and Fludarabine.

12. A method of treating a hematologic malignancy associated with high numbers of circulating tumor cells that is refractory to chemotherapy by administering a therapeutically effective amount of an anti-CD20 antibody or fragment thereof.